Network Working Group
Request for Comments: 953
Obsoletes: RFC 811

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October 1985

HOSTNAME SERVER

STATUS OF THIS MEMO

This RFC is the official specification of the Hostname Server Protocol. This edition of the specification includes minor revisions to RFC 811 which brings it up to date. Distribution of this memo is unlimited.

INTRODUCTION

The NIC Internet Hostname Server is a TCP-based host information program and protocol running on the SRI-NIC machine. It is one of a series of internet name services maintained by the DDN Network Information Center (NIC) at SRI International on behalf of the Defense Communications Agency (DCA). The function of this particular server is to deliver machine-readable name/address information describing networks, gateways, hosts, and eventually domains, within the internet environment. As currently implemented, the server provides the information outlined in the DoD Internet Host Table Specification [See RFC-952]. For a discussion of future developments see also RFC-921 concerning the Domain Name System.

PROTOCOL

To access this server from a program, establish a TCP connection to port 101 (decimal) at the service host, SRI-NIC.ARPA (26.0.0.73 or 10.0.0.51). Send the information request (a single line), and read the resulting response. The connection is closed by the server upon completion of the response, so only one request can be made for each connection.

QUERY/RESPONSE FORMAT

The name server accepts simple text query requests of the form

<command key> <argument(s)> [<options>]

where square brackets ("[]") indicate an optional field. The command key is a keyword indicating the nature of the request. The defined keys are explained below.

The response, on the other hand, is of the form

<response key> : <rest of response>

where <response key> is a keyword indicating the nature of the response, and the rest of the response is interpreted in the context of the key.

NOTE: Care should be taken to interpret the nature of the reply (e.g, single record or multiple record), so that no confusion about the state of the reply results. An "ALL" request will likely return several hundred or more records of all types, whereas "HNAME" or "HADDR" will usually return one HOST record.

COMMAND/RESPONSE KEYS

The currently defined command keywords are listed below. NOTE: Because the server and the features available will evolve with time, the HELP command should be used to obtain the most recent summary of implemented features, changes, or new commands.

Keyword	Response
HELP	This information.
VERSION	"VERSION: <string>" where <string> will be different for each version of the host table.
HNAME <hostname>	One or more matching host table entries.
HADDR <hostaddr>	One or more matching host table entries.
ALL	The entire host table.
ALL-OLD	The entire host table without domain style names.
DOMAINS	The entire top-level domain table (domains only).
ALL-DOM	Both the entire domain table and the host table.
ALL-INGWAY	All known gateways in TENEX/TOPS-20 INTERNET.GATEWAYS format.

Remember that the server accepts only a single command line and returns only a single response before closing the connection. HNAME and HADDR are useful for looking up a specific host by name or address; VERSION can be used by automated processes to see whether a "new" version of the host table exists without having to transfer the

whole table. Note, however, that the returned version string is only guaranteed to be unique to each version, and nothing should currently be assumed about its format.

Response Keys:

ERR	entry not found, nature of error follows
NET	entry found, rest of entry follows
GATEWAY	entry found, rest of entry follows
HOST	entry found, rest of entry follows
DOMAIN	entry found, rest of entry follows
BEGIN	followed by multiple entries
END	done with BEGIN block of entries

More keywords will be added as new needs are recognized. A more detailed description of the allowed requests/responses follows.

QUERY/RESPONSE EXAMPLES

1. HNAME Query - Given a name, find the entry or entries that match the name. For example:

```
HNAME SRI-NIC.ARPA <CRLF>
```

where <CRLF> is a carriage return/ linefeed, and 'SRI-NIC.ARPA' is a host name

The likely response is:

```
HOST : 26.0.0.73, 10.0.0.51 : SRI-NIC.ARPA,SRI-NIC,NIC :
       DEC-2060 : TOPS20 : TCP/TELNET,TCP/SMTP,TCP/TIME,TCP/FTP,
       TCP/ECHO,ICMP :
```

A response may stretch across more than one line. Continuation lines always begin with at least one space.

2. HADDR Query - Given an internet address (as specified in RFC 796) find the entry or entries that match that address. For example:

```
HADDR 26.0.0.73 <CRLF>
```

where <CRLF> is a carriage return/ linefeed, and '26.0.0.73' is a host address.

The likely response is the same as for the previous HNAME request.

3. ALL Query - Deliver the entire internet host table in a machine-readable form. For example:

ALL <CRLF> ;where <CRLF> is a carriage return/linefeed

The likely response is the keyword 'BEGIN' followed by a colon ':', followed by the entire internet host table in the format specified in RFC-952, followed by 'END:'.

ERROR HANDLING

ERR Reply - may occur on any query, and should be permitted in any access program using the name server. Errors are of the form

ERR : <code> : <string> :
as in
ERR : NAMNFD : Name not found :

The error code is a unique descriptor, limited to 8 characters in length for any given error. It may be used by the access program to identify the error and, in some cases, to handle it automatically. The string is an accompanying message for a given error for that case where the access program simply logs the error message. Current codes and their associated interpretations are

NAMNFD	Name not found; name not in table
ADRNFD	Address not found; address not in table
ILLCOM	Illegal command; command key not recognized
TMPSYS	Temporary system failure, try again later

REFERENCES

1. Harrenstien, K., Stahl, M., and Feinler, E., "Official DoD Internet Host Table Specification," RFC-952, DDN Network Information Center, SRI International, October 1985.

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3. Postel, J., "Address Mappings," RFC-796, Information Sciences Institute, University of Southern California, Marina del Rey, September 1981.

4. Postel, J., "Domain Name System Implementation Schedule", RFC-921, Information Sciences Institute, University of Southern California, Marina del Rey, October 1984.